Student Workbook

Agriculture Almanac

California Education and the Environment Initiative
History-Social Science Standard 6.2.2.

California Education and the Environment Initiative
Approved by the California State Board of Education, 2010

The Education and the Environment Curriculum is a cooperative endeavor of the following entities:
California Environmental Protection Agency
California Natural Resources Agency
Office of the Secretary of Education
California State Board of Education
California Department of Education
California Integrated Waste Management Board

Key Leadership for the Education and Environment Initiative:
Linda Adams, Secretary, California Environmental Protection Agency
Patty Zwarts, Deputy Secretary for Policy and Legislation, California Environmental Protection Agency
Andrea Lewis, Assistant Secretary for Education and Quality Programs, California Environmental Protection Agency
Mark Leary, Executive Director, California Integrated Waste Management Board
Mindy Fox, Director, Office of Education and the Environment, California Integrated Waste Management Board

Key Partners:
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http://www.calepa.ca.gov/Education/EEI/

Contents

Name: _____

Instructions: After reading ***California Connections: The Great Central Valley's Rise to Power***, (Student Edition, pages 2–5) answer the following questions. (5 points each)

1. What was the biggest problem facing California farmers when agriculture began in California?

2. How did the people of California solve this problem?

3. How did parts of California change once the "problem" was solved?

Name: _____

Hello Archeologists!

Part 1

Instructions: Your job is to work with your group members to analyze the contents of your midden and think about how the items affected agriculture and cities. As you read about each object or artifact and study its picture, please fill in the chart below. (21 points)

Object/ Artifact	Made of:	Main Use(s):	Effect on Development of Agriculture and Cities:
Cuneiform Tablet			
Hieroglyphics			
Sickle			
Mammal Bones			
Ancient Plow			
Shaduf			
Potter's Wheel			

Name: _____

Part 2

Instructions: Answer the following questions. (5 points each)

1. Where in the world did farming begin?

2. When did farming begin?

3. Why did farming begin in these regions?

4. What three techniques or tools developed during this time helped increase agricultural production?

Name: _____

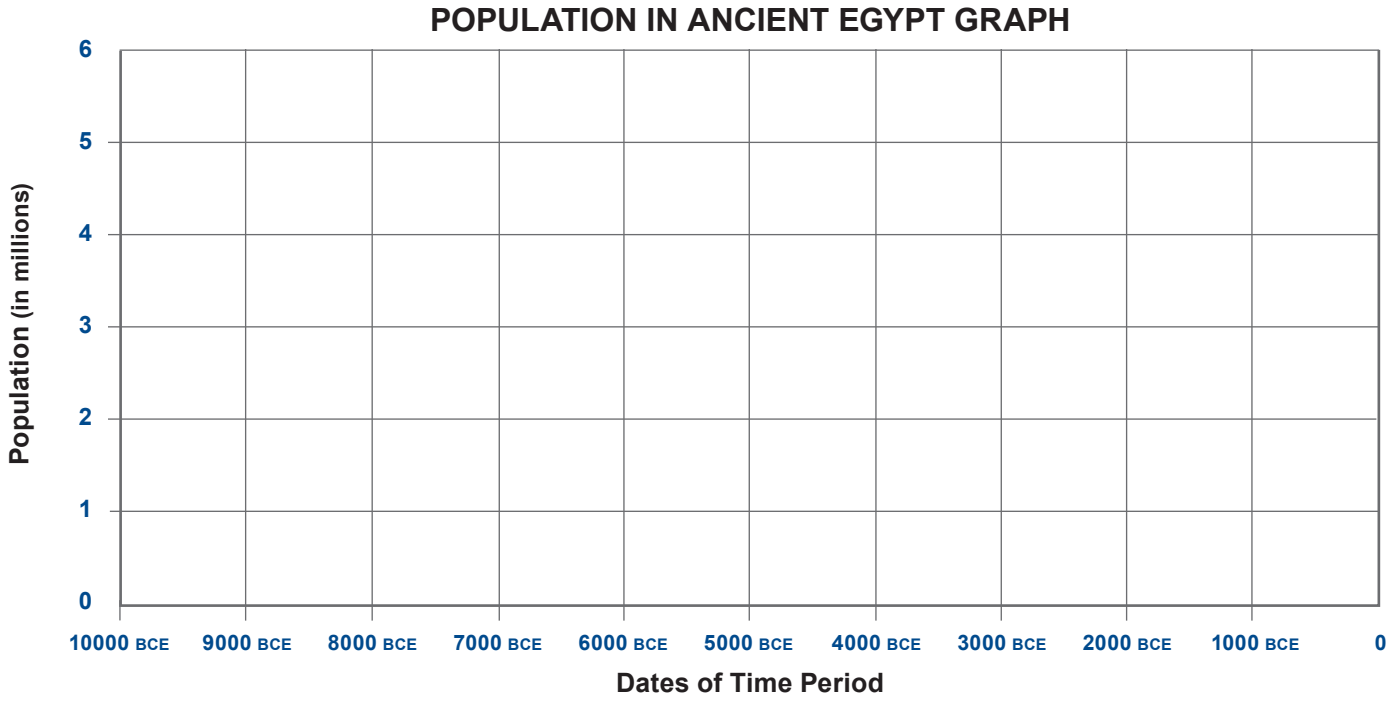
Part 1

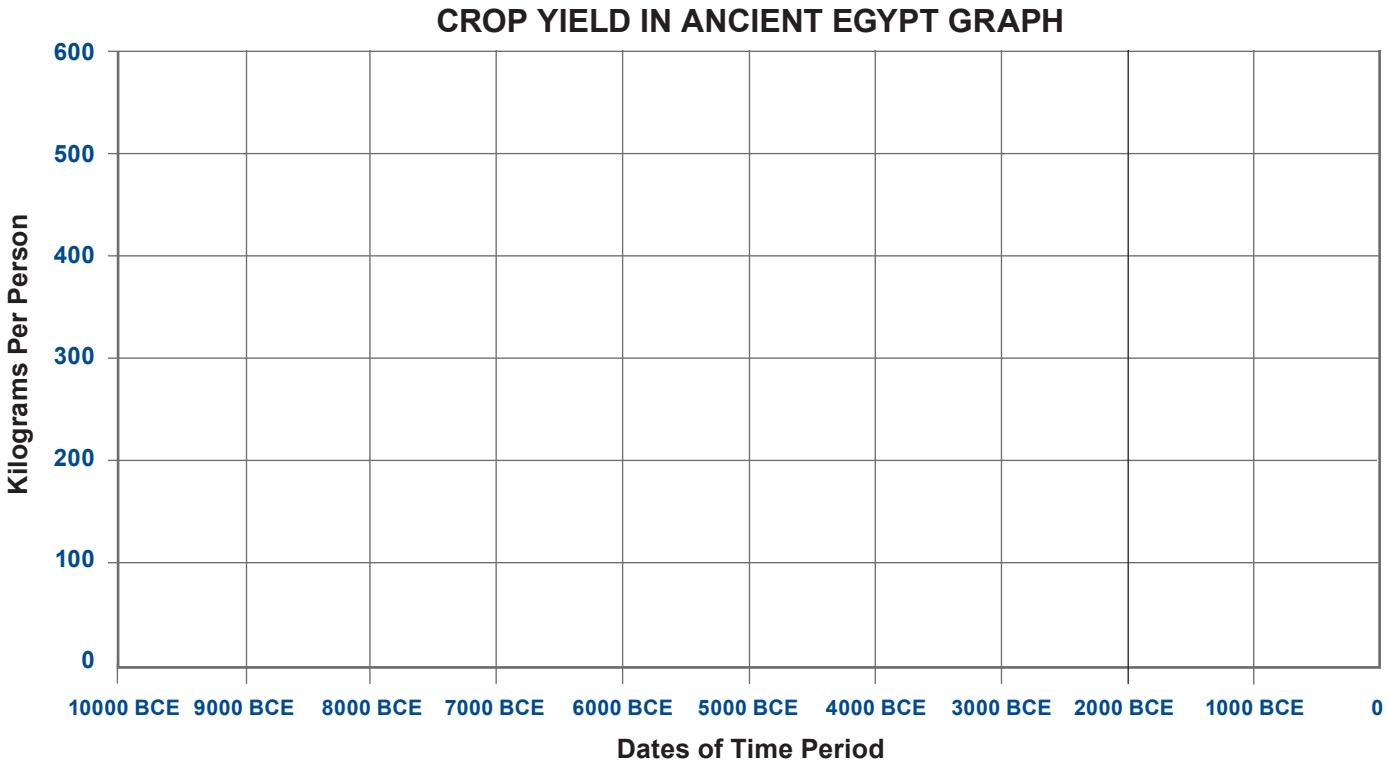
Instructions: In the space below, make a list of the improvements and inventions that you think helped farmers in the ancient world produce more crops.

Name: _____

Part 2

Instructions: Use the data on the **Data Tables for Counting the Crops and Crowds** (Student Workbook, pages 13–14) to complete each of the graphs below. (5 points each)





Name: _____

Part 3

Instructions: Use your graphs from Part 2 to answer the questions. (2 points each)

1. What effects do you think increased crops and populations had on the natural resources?

2 What are some benefits of having an economic surplus?

Part 4

Instructions: Use your graphs from Part 2 to answer the questions. (2 points each)

3. Does the population curve increase or decrease with time? _____
4. Does the crop yield curve increase or decrease with time? _____
5. Do both the population and the crop yield curves follow the same pattern? _____
6. In two or three sentences, describe why you think this (your answer to #5) may be happening.

Name: _____

7. In the Late Period, do you think the food came from the same farms as it came from in the Old Kingdom? Explain your answer.

_____

_____

_____

_____

8. What role did transportation play when settlements and cities became bigger?

_____

_____

_____

_____

Name: _____

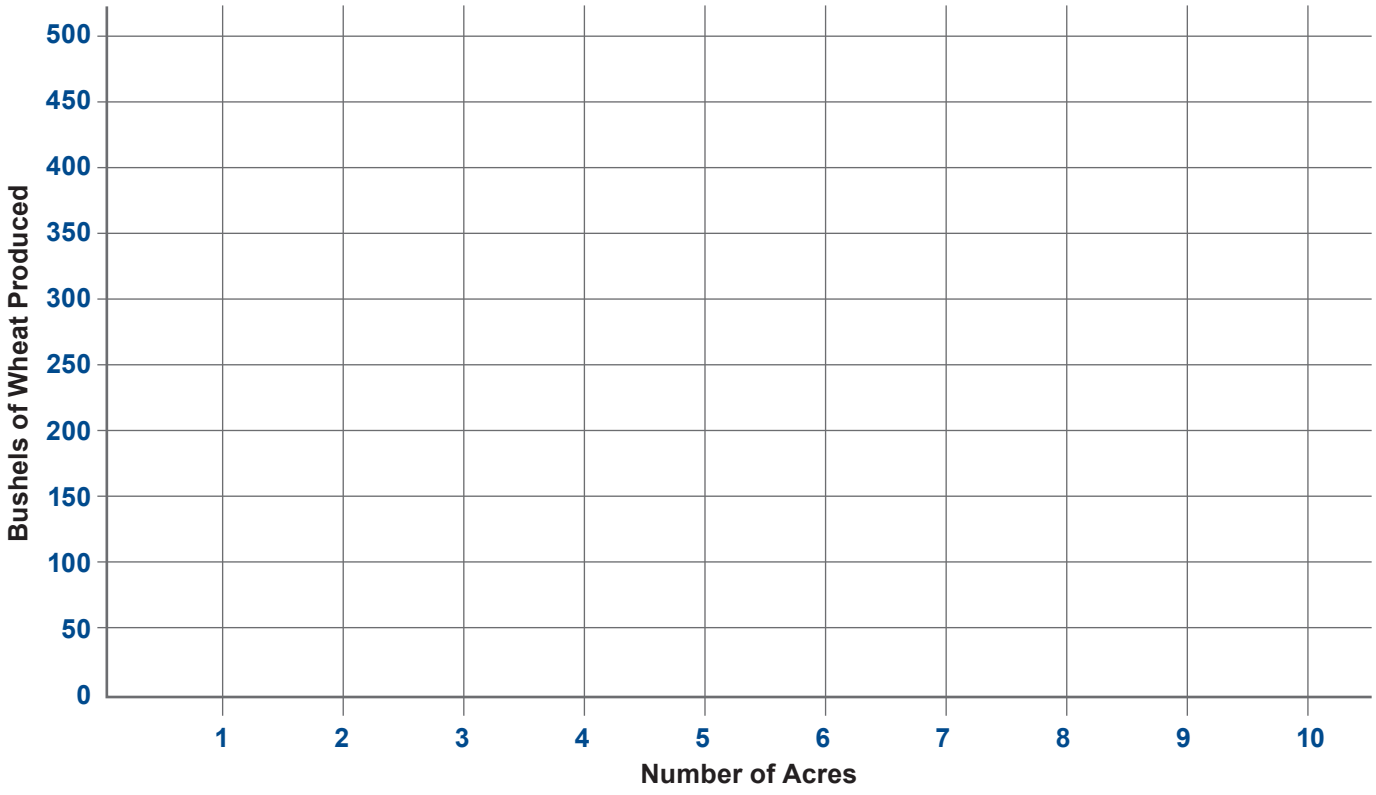
Instructions:

1. Review the data in the tables.
2. Create the graphs described below each table.
3. Answer the questions on page 2 using the graphs.

Bushels of Wheat Produced (1 bushel weighs 60 pounds)	**Number of Acres Needed** (acre=43,560 square feet or about ¾ of a football field)	**Amount of Water Needed** (in gallons)
45	1	245,454
90	2	490,908
225	5	1,227,270
450	10	2,454,540

Graph 1: Bushels of Wheat Produced Per Acre

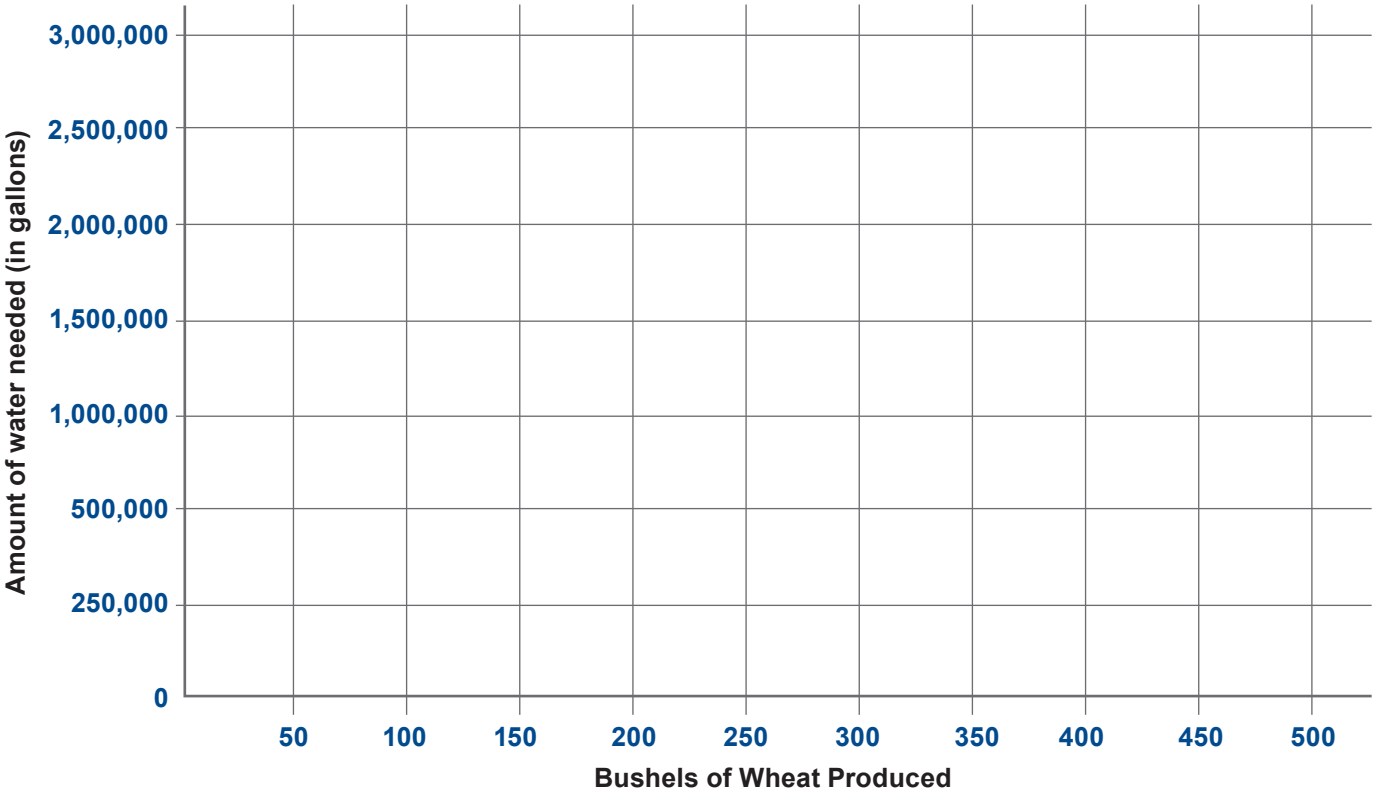
Make a graph showing the relationship between the number of bushels of wheat produced and the number of acres needed.



Name: _____

Graph 2: Amount of Water Needed Per Acre for Wheat

Make a graph showing the relationship between the number of bushels of wheat produced and the amount of water needed.



Questions for Graphs 1 and 2 (circle the appropriate answer)

1. As the number of bushels of wheat increases, the number of acres needed **increases** or **decreases**.
2. As the number of bushels of wheat increases, the amount of water needed **increases** or **decreases**.
3. Think about the relationship between these elements. What would this mean for a farmer in ancient times? _____

_____

_____

_____

_____

Name: _____

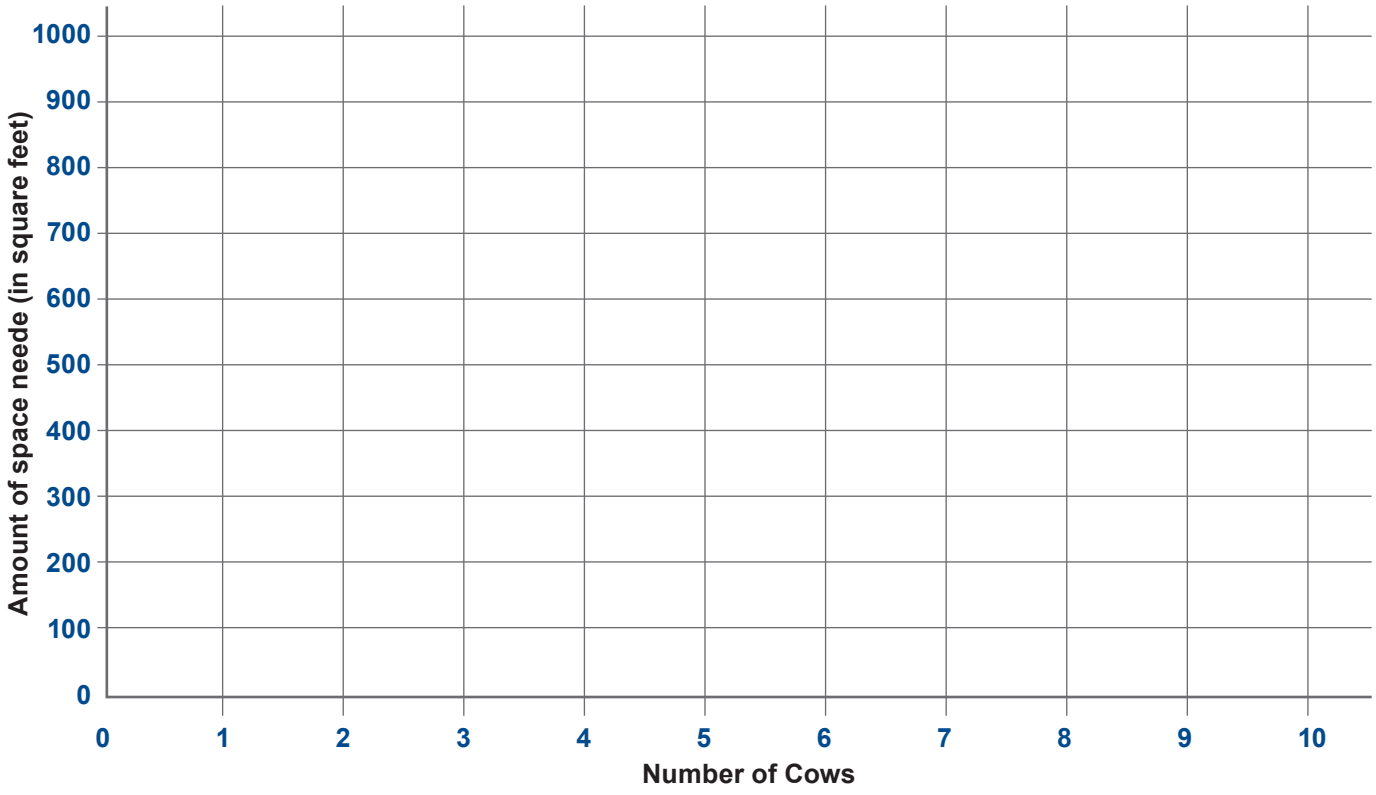
Instructions:

1. Review the data in the tables.
2. Create the graphs described below each table.
3. Answer the questions on page 2 using the graphs.

Number of Cows (produce 30 pounds of milk per day)	**Amount of Space Needed** (in square feet)	**Amount of Water Needed per Day** (in gallons)
1	80	14
2	160	28
5	400	70
10	800	140

Graph 3: Amount of Space Needed Per Cow

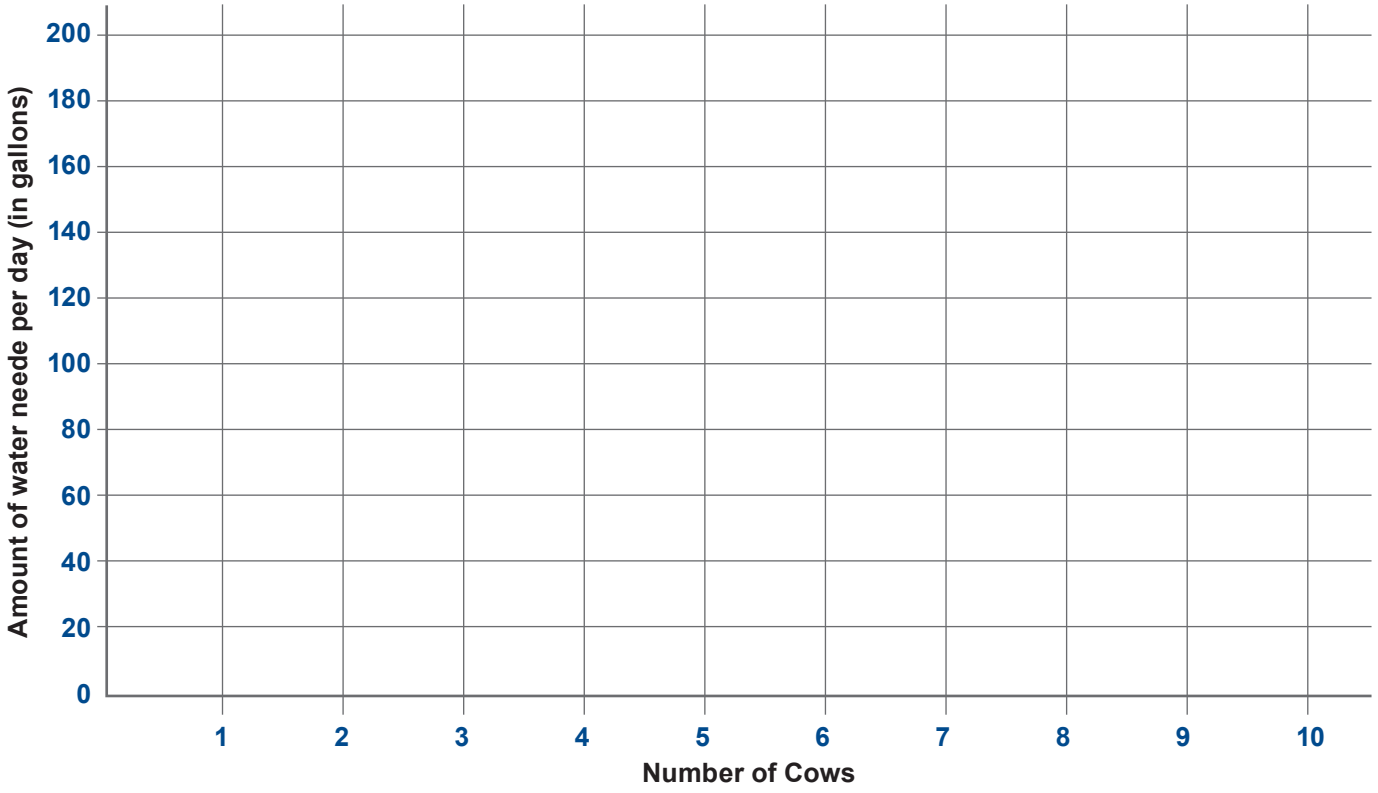
Make a graph showing the relationship between the number of cows and the amount of space needed.



Name: _____

Graph 4: Amount of Water Needed Per Cow Per Day

Make a graph showing the relationship between the number of cows and the amount of water needed.



Questions for Graphs 3 and 4

1. As the number of cows increases, the number of space needed **increases** or **decreases**.
2. As the number of cows increases, the amount of water needed **increases** or **decreases**.
3. Think about the relationship between these three elements.What would this mean for a farmer in ancient times? _____

_____

_____

_____

_____

Name: _____

Instructions: Use the data in the following tables to build graphs on **Graphing the Crops and Crowds** (Student Workbook, pages 5–8).

Population In Ancient Egypt Chart

Description of Time Period	Dates	Population
Pre-Agriculture on the Nile	8000 BCE	100,000
Agriculture on the Nile begins; first permanent buildings built	6000 BCE	200,000
Old Kingdom: Invention of the shaduf and irrigation canals	2650 BCE	1 million
Middle Kingdom	2030 BCE	2 million
New Kingdom	1550 BCE	3 million
Late Period	1295 BCE	4 million
Beginning of Common Era	0	5 million

Name: _____

Crop Yield In Ancient Egypt Chart

Description of Time Period	Dates of Time Period	Crop Yield per Person (Average)
Pre-Agriculture on the Nile	8000 BCE	2 kilograms
Agriculture on the Nile begins; first permanent buildings built	6000 BCE	100 kilograms
Old Kingdom: Invention of the shaduf and irrigation canals	2650 BCE	350 kilograms
Middle Kingdom	2030 BCE	400 kilograms
New Kingdom	1550 BCE	450 kilograms
Late Period	1295 BCE	550 kilograms
Beginning of Common Era	0	600 kilograms

Name: _____

Instructions: Fill in the chart below as you listen to the class discussion. (1 point per cell)

	Subsistence → Cities			
Description of Community				
Population				
Farming Methods				

Name: _____

	Subsistence → Cities			
Division of Labor				
Decision Making				

Name: _____

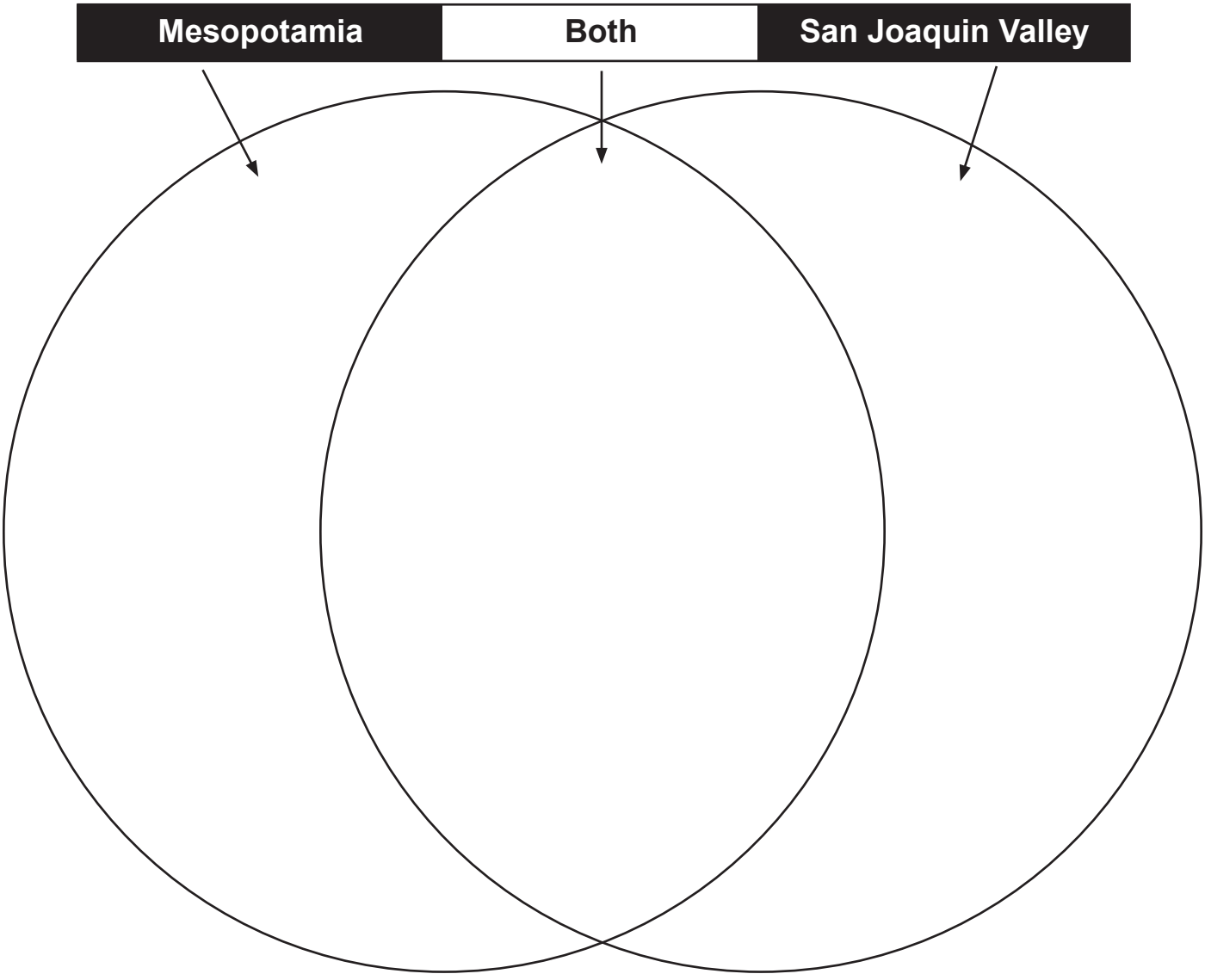
Part 1

Instructions: Take notes on the **Changes in the Fertile Crescent** presentation in the space below.

Name: _____

Part 2

Instructions: Using what you know about Mesopotamia and the San Joaquin Valley (geography, irrigation techniques, agricultural techniques, rivers, soil, and climate), fill in the Venn diagram below. The things that are similar should be written in the area where the circles overlap; the differences should be written in the separate portions of the circles.



Name: _____

Part 3

Instructions: Answer the following questions, using information from today's lesson.

1. Describe how agriculture changed the land of Mesopotamia and what effect those changes had on the civilization. (5 points)

2. What can California learn from the example of ancient Mesopotamia? (10 points)

Unit Title: **Agricultural Advances in Ancient Civilizations**
Grade: **6**

Science Standard 6.2.2.

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